

< Back to results | 1 of 1

Export Download Print E-mail Save to PDF Add to List More...>

International Journal of Recent Technology and Engineering
Volume 7, Issue 6, March 2019, Pages 216-218

Development of a glucose sensor system with real time calibration
(Article)

Rashid, M.M. Mokhtaruddi, N., Nayen, M.J.

Department of Mechatronics Engineering, Kulliyah of Engineering, International Islamic University, Malaysia

Abstract

View references (5)

This research discussed on developing a glucose sensor with real time calibration . In general cases, the blood sugar level is checked through puncturing the fingertip to get the blood sample on a test strip. Moreover, this method is not convenient for the patients because it requires changing of the strips for taking the blood samples every time and its price is also higher. This may expose the patients to infections while taking the blood samples. A non-invasive method is developed in this work to improve the old method. A near infrared (NIR) sensor is used to detect the scattering and absorption of light through glucose concentration. The simulation and construction of glucose sensor circuit are implemented through testing different solutions of glucose concentration (50-300 mg/dL) using microcontroller and Matlab software. The data of blood tests from 6 patients are compared and analyzed with the constructed glucose sensor . Results show that, the glucose sensor can detect the glucose concentrations (hyperglycemia, normal and hypoglycemia level) through finger and display it on Liquid Crystal Display (LCD). This sensor is able to provide an alert if glucose level reach higher than normal range. So the diabetes disease can be monitored in real time without difficulties of the patients in addition this method is competitive, affordable and convenient for the patients. © BEIESP.

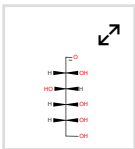
SciVal Topic Prominence

Topic: Glucose | Infrared devices | Non-invasive blood

Prominence percentile: 90.668

Chemistry database information

Substances



Author keywords

Diabetes disease Near infrared (NIR) sensor Non-invasive method

Funding details

Funding sponsor	Funding number	Acronym
International Islamic University Malaysia		

Metrics

0 Citations in Scopus
0 Field-Weighted Citation Impact



PlumX Metrics
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert >

Set citation feed >

Related documents

- Near-infrared LED based non-invasive blood glucose sensor
Yadav, J. , Rani, A. , Singh, V. (2014) 2014 International Conference on Signal Processing and Integrated Networks, SPIN 2014
- Blood glucose estimation by non-invasive optical technique
Vasanthadev Surya Kala, S. , Shankar, K.M. , Prince, S. (2016) International Journal of Control Theory and Applications
- Transmittance and reflectance measurements of anhydrous glucose concentrations on solutions
González-Viveros, N. , Cerecedo-Ñuñez, H.H. , García-Guzmán, J. (2014) Optics InfoBase Conference Papers




View all related documents based on references
Find more related documents in

ISSN: 22773878
Source Type: Journal
Original language: English

Document Type: Article
Publisher: Blue Eyes Intelligence Engineering and Sciences
Publication

References (5)

[View in search results format >](#)

☐ All [Export](#)  [Print](#)  [E-mail](#)  [Save to PDF](#) [Create bibliography](#)

- ☐ 1 Coster, S., Gulliford, M.C., Seed, P.T., Powrie, J.K., Swaminathan, R.
Monitoring blood glucose control in diabetes mellitus: A systematic review
(2000) Health Technology Assessment, 4 (12), pp. i-iv+1-84. Cited 102 times.

- ☐ 2 Ferrante do Amaral, C.E., Wolf, B.
Current development in non-invasive glucose monitoring
(2008) Medical Engineering and Physics, 30 (5), pp. 541-549. Cited 153 times.
doi: 10.1016/j.medengphy.2007.06.003
[View at Publisher](#)

- ☐ 3 Maruo, K., Tsurugi, M., Chin, J., Ota, T., Arimoto, H., Yamada, Y., Tamura, M., (...), Ozaki, Y.
Noninvasive blood glucose assay using a newly developed near-infrared system
(2003) IEEE Journal on Selected Topics in Quantum Electronics, 9 (2), pp. 322-330. Cited 103 times.
doi: 10.1109/JSTQE.2003.811283
[View at Publisher](#)

- ☐ 4 Amir, O., Weinstein, D., Zilberman, S., Less, M., Perl-Treves, D., Primack, H., Weinstein, A., (...), Karasik, A.
Continuous noninvasive glucose monitoring technology based on "occlusion spectroscopy"
(2007) Journal of Diabetes Science and Technology, 1 (4), pp. 463-469. Cited 51 times.
<http://dst.sagepub.com/content/by/year>
doi: 10.1177/193229680700100403
[View at Publisher](#)

- ☐ 5 Shaw, J.E., Sicree, R.A., Zimmet, P.Z.
Global estimates of the prevalence of diabetes for 2010 and 2030
(2010) Diabetes Research and Clinical Practice, 87 (1), pp. 4-14. Cited 3777 times.
doi: 10.1016/j.diabres.2009.10.007
[View at Publisher](#)

About Scopus

What is Scopus

Content coverage

Scopus blog

Scopus API

Privacy matters

Language

日本語に切り替える

切换到简体中文

切换到繁體中文

Русский язык

Customer Service

Help

Contact us

ELSEVIER

[Terms and conditions ↗](#) [Privacy policy ↗](#)

Copyright © Elsevier B.V. ↗. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.

